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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,577	07/25/2003	Eiichi Ono	116158	9559

25944 7590 12/02/2004

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EXAMINER	
TRAN, DALENA	
ART UNIT	**PAPER NUMBER**
3661	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,577	ONO ET AL.	
	Examiner	Art Unit	
	Dalena Tran	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-9* is/are rejected.

7)☒ Claim(s) *3 and 4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/25/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notice to Applicant(s)

1. This application has been examined. Claims 1-9 are pending.

2. The prior art submitted on 7/25/03 has been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2,8, and 6-9, are rejected under 35 U.S.C.103(a) as being unpatentable over Grosch et al. (3,956,931) in view of Yasui et al. (6,792,343).

As per claim 1, Grosch et al. disclose a self aligning torque reference value calculating apparatus comprising: a self aligning torque estimating portion which estimates a self aligning torque applied to a tire (see at least column 3, lines 6-24), a slip angle estimating portion which estimates a slip angle of the tire, and a self aligning torque model value calculating portion which calculates a self aligning torque model value using the slip angle estimated by the slip angle estimating portion (see the abstract; and at least columns 3-4, lines 25-16). Grosch et al. do not disclose a self aligning torque ratio calculating. However, Yasui et al. disclose a self aligning torque ratio calculating which calculates a self aligning torque ratio which is a ratio between the self aligning torque estimated and the self aligning torque model value (see at least column 9, lines 5-32; and column 11, lines 8-49), and a self aligning torque reference value calculating portion which calculates a self aligning torque reference value based on the self aligning torque

ratio and the self aligning torque model value when a maximum value of the self aligning torque ratio exceeds a threshold value (see at least column 4, lines 21-39; column 10, lines 13-28; columns 11-12, lines 50-4; and column 14, lines 39-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Grosch et al. by combining a self aligning torque ratio calculating, and calculates a self aligning torque reference value based on the self aligning torque ratio and the self aligning torque model value for determining the preferred direction of rotation of a vehicle tire to maintain a straight path travel of the vehicle.

As per claim 2, Yasui et al. disclose self aligning torque reference value calculating portion outputs the self aligning torque model value as the self aligning torque reference value when the maximum value of the self aligning torque ratio does not exceed the threshold value (see column 12, lines 5-23).

As per claim 5, Grosch et al. disclose a self aligning torque reference value calculating apparatus comprising: a self aligning torque estimating portion which estimates a self aligning torque applied to a tire (see at least column 3, lines 6-24), a slip angle estimating portion which estimates a slip angle of the tire, and a self aligning torque model value calculating portion which calculates a self aligning torque model value using the slip angle estimated by the slip angle estimating portion (see the abstract; and at least columns 3-4, lines 25-16). Grosch et al. do not disclose a self aligning torque ratio calculating, and a road surface friction estimating. However, Yasui et al. disclose a self aligning torque ratio calculating which calculates a self aligning torque ratio which is a ratio between the self aligning torque estimated and the self aligning torque model value (see at least column 9, lines 5-32; and column 11, lines 8-49), and a self

aligning torque reference value calculating portion which calculates a self aligning torque reference value based on the self aligning torque ratio and the self aligning torque model value when a maximum value of the self aligning torque ratio exceeds a threshold value (see at least column 4, lines 21-39; column 10, lines 13-28; columns 11-12, lines 50-4; and column 14, lines 39-60); and a road surface friction estimating portion which estimates a road surface friction state based on the self aligning torque estimated and the self aligning torque reference value (see at least columns 10-11, lines 29-7; column 12, lines 24-67; and columns 14-15, lines 62-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teach of Grosch et al. by combining a self aligning torque ratio calculating, and calculates a self aligning torque reference value based on the self aligning torque ratio and the self aligning torque model value for determining the preferred direction of rotation of a vehicle tire to maintain a straight path travel of the vehicle; and estimating a road surface friction for controlling driving force applied to vehicle wheel to maintain vehicle stability.

As per claim 6, Yasui et al. also disclose estimates a grip degree of the tire as the road surface friction state, based on a ratio between the self aligning torque and the self aligning torque reference value (see at least the abstract; columns 3-4, lines 64-20; column 13, lines 1-44; and columns 15-16, lines 66-32).

Also, as per claim 7, Yasui et al. disclose estimates a road surface friction coefficient based on the grip degree and a lateral acceleration (see at least columns 8-9, lines 11-4).

Claims 8, and 9, are method claims corresponding to apparatus claims 1, and 5 above. Therefore, they are rejected for the same rationales set forth as above.

5. Claims 3-4, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

. Tsuyama et al. (5,636,121)

. Matsuno (6,556,911)

. Germann et al. (6,754,615)

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 703-308-8223. The examiner can normally be reached on M-F (7:30 AM-5:30 PM), off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 703-305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner
Dalena Tran
Dalena Tran
November 27, 2004